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With the invention described herein each physical quantity, such as the temperature, can be measured that affects the resonance of the resonator, for example by changing the size, shape and/or index of refraction of the resonator. The measurement of pressure is also possible. In addition, it is possible to measure the concentration of substances that alter the optical properties of the resonator (e.g. by diffusion).

Based on drawings, embodiments of the invention are described in more detail in the following. The drawings show:

Fig. 1

~~Fig. 1A~~ is a longitudinal section of a first embodiment of a sensor with a conical cutout in the light guiding fiber.

Fig. 2 is a longitudinal section of second embodiments of a sensor with a cylindrical and conical cutout in the light guide.

Fig. 3 is a longitudinal section of a third embodiment of a sensor with a microresonator in a hollow waveguide.

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